Abstract Submitted
for the DAMOP07 Meeting of
The American Physical Society

Electron affinity and photodetachment calculations of Nd^{-1}
STEVEN M. O'MALLEY, DONALD R. BECK, Physics Department, Michigan Technological University — Our recent relativistic configuration-interaction (RCI) calculations for the bound states of Ce^{-2} have shown the usefulness of analysis which combines calculated photodetachment cross sections with experimental measurements [3]. Here we present RCI results for 8 weakly bound (≤ 0.2 eV) states of Nd^- ($6p$ attachments to $4f^4 6s^2$). Photodetachment cross sections involving excited states of Nd I are expected to resolve the discrepancy with the available experimental electron affinity of 1.916 eV [4]. Additional improvements of our methodology are also discussed.

[1]Supported by the National Science Foundation, Grant No. PHY-0097111.
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Date submitted: 26 Jan 2007 Electronic form version 1.4